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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,673	08/29/2003	Gibong Jeong	TI-33342	2540

23494 7590 09/19/2006

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EXAMINER	
RIZK, SAMIR WADIE	
ART UNIT	**PAPER NUMBER**
2133	

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/652,673	JEONG ET AL.	
	Examiner	Art Unit	
	Sam Rizk	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,13 and 16-20* is/are rejected.

7)☒ Claim(s) *11,12,14,15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

- Response to the applicant's amendment dated 6/29/2006
- Amended claims 1-20 have been submitted for examination
- Amended claims 1-10,13,16-20 have been rejected
- Amended claims 11,12,14 and 15 are objected to

Claim Objections

1. In view of the applicant amended claim 3 and clarifications of claim 19 limitation, all objections to the claims 3 and 19 are withdrawn.
2. Claim 17 should read:

   " a receive block **de**-interleaver operational to selectively **de**-interleave the demodulated symbols."

   Appropriate correction is required.

Drawings Objections

3. In view of the applicant argument filed on 6/29/2006; The Examiner notes, that showing of "Prior Art" drawing as compared to the applicant claimed embodiment of the invention as in Figures 1 and 2 would facilitate understanding of the invention. The Examiner maintains objection to the drawings.
4. There is inadequate support and explanation of figure 2 in the specifications. The Examiner fails to see the relevance of figure 2 as applied to the invention.

Additional explanation of figure 2 in the specification without adding a new mater is required.

5. The drawings of Figures 1 and 2 are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the **complete reference sign(s)** mentioned in the description. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Arguments

7. Applicant's arguments, see pages 8-14, filed on 6/29/2006, with respect to claims 1-20 have been fully considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-10,13,16-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Moon et al. US patent no. 7027782 (Hereinafter Moon).

9. In regard to claim 1, Moon teaches:

- (Original) A method of link adaptation and code space management comprising the steps of:
- encoding original transmission bits into initial turbo encoded symbols; storing the initial turbo encoded symbols;

(Note: FIG. 7, reference sign (712) and col. 12, line 5 in Moon)

- interleaving and transmitting the initial turbo encoded symbols;

(Note FIG. 7, reference sign (710) in Moon)

- determining the number of Walsh codes available for a desired user and a modulation and coding scheme (MCS) level according to carrier to interference (C/I) feedback values from a desired mobile station;

(Note: FIG. 7, reference sign (726) and col. 11, lines (32-35) in Moon)

- determining rate matching factors corresponding to the number of available Walsh codes and the MCS level;

(Note: col. 11, lines (30-45) in Moon)

- selectively puncturing or repeating the stored turbo encoded symbols based on the rate matching factors; and

(Not: col. 3, lines (37-39), col. 17, lines 4-7) and col. 12, lines (7-19) in Moon)

(Note: col. 16, lines (40-42) and col. 21, lines ((13-15) in Moon)

The Examiner notes Moon teaches the rate matching (coding rate of ½) in first embodiment of ½ and (coding rate of ¾) in second embodiment.

- re-transmitting the turbo encoded symbols subsequent to selectively puncturing or repeating the turbo encoded symbols.

(Note: Abstract in Moon)

10. In regard to claim 2, Moon teaches:

- (Original) The method according to claim 1, further comprising the steps of:
- receiving the transmitted initial turbo encoded symbols and the re-transmitted turbo encoded symbols subsequent to selectively puncturing or repeating the turbo encoded symbols;
- re-deriving the rate matching factors in response to the number of code channels and, MCS level of current re-transmissions and the initial transmission;
- selectively de-puncturing or de-repeating the received turbo encoded symbols based on the re-derived rate matching factors; and coded symbol combining the selectively de-punctured or de-repeated turbo encoded symbols.

(Note: Fig. 8 and col. 14, lines (18-28) in Moon)

The Examiner notes that although Moon did not disclose the reverse operation of selective puncturing as described in Fig. 7, reference sign (712), and the structure of a receiver in FIG. 8 inherently support selective de- puncturing based on the rate match and Walsh codes.

11. In regard to claim 3, Moon teaches;

- (Currently Amended) The method according to claim 2, wherein the step of coded symbol combining, comprises full or partial symbol combining.

(note: col. 4, lines (1 & 2) in Moon)

12. In regard to claim 4, Moon Teaches;

- (Original) The method according to claim 2, wherein the step of coded symbol combining comprises Chase combining.

(Note: col. 3, line 64 in Moon)

13. In regard to claim 5, Moon teaches;

- (Original) The method according to claim 2, wherein the step of coded symbol combining comprises Incremental Redundancy combining.

(Note; col. 4, line 1)

14. In regard to claim 6, Moon teaches;

- (Original)The method according to claim I, wherein the step of storing the initial turbo encoded symbols comprises storing the initial turbo encoded symbols in a hybrid automatic re-transmission request (H-ARQ) memory.

(Note: col. 12, lines (37-45) in Moon)

15. In regard to claim 7, Moon teaches;

- (Original) The method of link adaptation and code space management according to claim 1,wherein the step of encoding original transmission bits into initial turbo encoded symbols comprises selectively turbo puncturing or avoiding puncturing of the original transmission bits to generate an encoded packet (EP) having the lowest code rate required by a desired incremental redundancy (IR).

(Note: col. 4, lines (1-7) in Moon)

16. In regard to claim 8, Moon Teaches;

- (Original) The method according to claim: 7, further comprising the step of determining the radio frame length according to a resource management algorithm.

(Note:

17. In regard to claim 9, Moon teaches:

- (Original) The method according to claim 8, wherein the step of determining rate matching factors corresponding to the number of available Walsh codes and the MCS level further comprises determining the rate matching factors corresponding to the radio frame length.

(Note: packet selector disclosure, col. 12, lines (46-62) in Moon)

18. In regard to claim 10, Moon teaches:

- (Original) The method according to claim 9, wherein the steps of interleaving and transmitting the initial turbo encoded symbols comprise:
- generating a sub-packet (SP) from the EP based on the rate matching factors for this initial transmission; and transmitting the SP.

(Note: Any of Figures (9A), (9B), (10A),(10B),(11A),(11B),(12A) or (12B) in Moon)

19. In regard to claim 16, Moon teaches;

- (Original) A link adaptation and code space management system comprising:
- a transmission system comprising:
- a channel encoder;
- a hybrid automatic re-transmission request (H-ARQ) memory operational to store symbols generated via the channel encoder;
- a rate matching stage operational to generate rate matching parameters corresponding to the number of available Walsh codes, modulation and code scheme (MCS) level according to carrier to interference feedback values from a mobile receiver, and radio flame length according to a resource management algorithm; and

(Note: FIG. 7 in Moon)

- a receiving system comprising:
- a rate matching stage operational to re-generate the rate matching parameters;
- a coded symbol combiner stage operational to implement at least one coded symbol combining of the type selected from the group consisting of incremental redundancy combining, full symbol combining, and partial symbol combining and
- a channel decoder operational to decode the coded symbols generated via the coded symbol combiner stage.

(Note: FIG. 8 in Moon)

20. In regard to claim 17, Moon teaches;

- (Original) The link adaptation and code space management system according to claim 16, further comprising:
- a transmission block interleaver operational to selectively interleave transmitted symbols;

(Note: FIG. 7, reference sign (710) in Moon)

- a transmission modulator operational to modulate the transmitted symbols;

(Note: FIG. 7, reference sign (722) in Moon)

- a receive demodulator operational to demodulate received symbols; and

(Note: FIG. 8, reference sign (814) in Moon)

- a receive block interleaver operational to selectively interleave the demodulated symbols.

(Note: FIG.8, reference sign (810) in Moon)

21. In regard to claim 18, Moon teaches:

- (Original) The link adaptation and code space management system according to claim 16, wherein the channel encoder comprises a turbo encoder.

(Note: FIG. 7, reference sign (712) and col. 12, line 5 in Moon)

22. In regard to claim 19, Moon teaches:

- (Original) The link adaptation and code space management system according to claim 18, wherein the channel decoder comprises a turbo decoder.

(Note: FIG. 8, reference sign (824) in Moon)

23. In regard to claim 20, Moon teaches:

- (Original) The link adaptation and code space management system according to claim 16, wherein the receive rate matching stage is operational to re-generate the rate matching parameters based on the number of available Walsh codes, MCS level, and parameters known to both transmission and receiving sides selected from the group consisting of radio frame index, and scrambling code.

(Note: col. 11, lines (30-45) in Moon)

Allowable Subject Matter

24. Claims 11,12,14 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

25. In regard to claim 11, the prior Art of record and, in particular Moon teaches substantially all the limitations in claims1-9.

However, the prior art do not teach, suggest, or otherwise render obvious:

- (Original) The method according to claim 10, wherein the steps of selectively puncturing or repeating the stored turbo encoded symbols based on the rate matching factors and re-transmitting the turbo encoded symbols subsequent to selectively puncturing or repeating the turbo encoded symbols are replaced by the steps of;
- **determining a new set of rate matching factors according the MCS, number of Walsh codes, and radio frame length in response to an unsuccessful SP decoding signal via an acknowledge channel from a receiver;**
- **determining a new SP based on the new set or rate matching factors; and re-transmitting the new SP.**

26. Claim 12 depend from claims 11.

27. Claim 14 has similar language as in claim 11.

28. Claim 15 depend from claim 14.

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Tong et al. US patent no. 7072307 teaches hybrid ARQ schemes with soft combining in variable rate packet data applications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Rizk whose telephone number is (571) 272-8191. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronics Business Center (EBC) at 866-217-9197 (toll-free)

Sam Rizk, MSEE, ABD

Examiner

ART UNIT 2133

9/8/06

GUY LAMARRE
PRIMARY EXAMINER